



**QD-R-012**  
**REVISION H**  
**EFFECTIVE DATE: October 1, 2004**

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# **ORGANIZATIONAL INSTRUCTION**

## **S&MA (QD) OPERATION OF THE MSFC CORRECTIVE ACTION SYSTEM**

**OPR(s)**

**QD10, QD20, QD30,  
and QD40**

**OPR DESIGNEE**

**John McPherson**

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## DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline		11/21/97	
Revision	A	02/24/98	Revised to Include Quality System Discrepancy Notice (QSDN) Processing; Add nonconformance trending and preventive action effectiveness evaluation; Adjusted for compatibility with January 30, 1998 MPG 1280.4, Revision A
Revision	B	9/1/98	Revised to match revisions in MPG 1280.4, Rev. B regarding CAB meeting not always required for RCAR closure; Add review to assure each data field has an entry (data or the word NONE) for POC closure submittal per NQA Audit Report 98/35812/S01, Ref. No. 3 Nonconformance
Revision	C	3/3/99	In response to RCAR 96 / QSDN 40, revise processing by PAC to emphasize monthly PAC statusing of open RCARs, 5-day turn-around on PAC screening activities, and 10-day turn-around on PAC activities in reviewing responses and coordinating POC and CAB activities
Revision	D	7/1/99	Changes made to reflect new organization code changes and/or Changes made to reflect new directives renumbering scheme and to incorporate the corrective action for closure of NCR 266
Revision	E	9/09/02	Format and numbering change to implement requirements of QS-A-001 rev F.
Revision	F	09/02/03	Change name of QualComm to Centerwide Customer Feedback System; Change S&MA organization references from QS10 to QS40
Revision	G	11/20/03	Revise Draft RCAR trend process (to resolve NCR 555) and correct retention schedule per input from MSFC Records Manager
Revision	H	10/1/04	Revised to bring document in compliance with the HQ Rules Review Action (CAITS: 04-DA01-0387). Changes were also made to reflect S&MA organizational name changes (i.e., QS to QD).

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## S&MA (QD) Operation of the MSFC Corrective Action System

### 1. SCOPE

1.1 Scope This Organizational Instruction (OI) provides procedures for S&MA's processing and coordinating processing of corrective action system activities. It is applicable to all hardware and software discrepancies, Centerwide Customer Feedbacks, and quality system discrepancy notices reported to the MSFC Corrective Action System (CAS) through the lower level nonconformance systems which fall within the scope of MPD 1280.1, "MSFC Management Manual", and MPR 1280.4, "MSFC Corrective Action System".

1.2 Purpose The purpose of this OI is to establish the S&MA procedure and responsibilities for review, coordination, tracking, and disposition of problems reported through the MSFC CAS. The overall CAS goals are to prevent recurrence of nonconformances, resolve customer complaints, correct quality system deficiencies, and assure that generic / systemic nonconformances are identified and addressed to prevent or minimized likelihood of occurrence on similar hardware, systems, or processes.

1.3 Applicability This organizational work instruction shall be applicable to discrepancies which are identified after the MSFC Corrective Action System was baselined on November 10, 1997. It shall apply to S&MA personnel charged with the responsibility for performing or coordinating activities of the MSFC CAS. It shall apply to MSFC in-house hardware, software, and quality systems meeting the requirements of MPR 1280.4. Screening shall be performed to eliminate situations which do not increase risk of the discrepant entity (hardware, software, product, service, or procedure) or for which corrective action is not cost-effective.

### 2. APPLICABLE DOCUMENTS

MPD 1280.1	MSFC Management Manual
MPR 1280.4	MSFC Corrective Action System
MPR 1280.8	Customer Satisfaction
MPR 8730.3	Control of Nonconforming Product
MWI 1280.2	MSFC Customer Feedback System
MWI 1280.3	Corrective/Preventive Action Notification System
MWI 1280.4	MSFC Quality System Deficiency Notice System

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### 3. DEFINITIONS

3.1 Centerwide Customer Feedback. The documented result of an MSFC customer communication (e.g., complaint, observation, or compliment) regarding delivered MSFC products and services as specified by MWI 1280.2, MSFC Customer Feedback System.

3.2 Closed Problem. A problem is closed when the Corrective Action Board (CAB) has approved it as a resolved problem based on the determination of the root cause(s) or probable cause(s) and the implementation of the corrective action, or that no corrective action is required (i.e., Explained Problem).

3.3 Corrective Action. Action taken to correct nonconformances and to eliminate the cause of nonconformances to prevent recurrence.

3.4 Discrepancy Record (DR). MSFC Form 460 or comparable database record containing that information.

3.5 Explained Problem. A problem is explained when the CAB concurs in the problem analysis and the rationale for not establishing corrective action.

3.6 Failure. The inability of a system, subsystem, component, or part to perform its specified function within specified limits, under specified conditions, and for a specified duration.

3.7 Generic Problem. A problem condition that could potentially exist on any or all components of like or similar design.

3.8 Nonconformance. A condition of any article, material, software, service, or activity in which one or more characteristics do not conform to requirements. This includes failures, discrepancies, defects, malfunctions, and noncompliances.

3.9 Nonproblem. A submitted Recurrence Control Action Request (RCAR) which does not meet the criteria for being classified as a reportable problem (i.e., should not have become an RCAR).

3.10 Open Problem. A problem for which responsible NASA management have not approved problem resolution.

3.11 Quality System Deficiency Notice (QSDN). Quality System nonconformance which is documented as specified by the MWI 1280.4, Quality System Deficiency Notice System.

3.12 Probable Cause. The event or series of events occurring at the lowest level of assembly which failure investigation / analysis indicates is most likely responsible for the problem.

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3.13 Recurrence Control Action Request (RCAR). A request initiated by S&MA's Corrective Action System (CAS) organization to responsible organizations to investigate a nonconformance for the purpose of identifying a root cause and actions necessary to prevent recurrence. An RCAR is also used to record the results of the investigation, justification for not taking corrective action (explanation) or actions taken to implement the corrective action to include its effectiveness.

3.14 Reportable Problem. Any nonconformance, customer feedback, or quality system discrepancy that meets the criteria of Section 1.3. When the criteria is satisfied, a Recurrence Control Action Request (RCAR) is initiated (i.e., the discrepancy becomes a reportable problem).

3.15 Resolved Problem. A problem that has been closed by explanation or corrective action.

3.16 Root Cause. The underlying reason for, or cause of, one or more nonconformances or deficiencies identified through investigations and studies which, when corrected, will prevent occurrence or prevent or reduce recurrence.

3.17 Unexplained Anomaly. An anomaly (ghost or phantom) which cannot be repeated or for which a cause cannot be determined.

#### 4. INSTRUCTIONS

NOTE: For the purpose of this write-up, the term Project Manager and S&MA Representative is to be interpreted in a broad sense and not only as the lead Project and S&MA person associated with a specific hardware project. Especially in the case of Customer Feedback and Quality System Discrepancy Notice (QSDN) CAS problems, these terms are used to refer to the organizational or discipline personnel directly responsible for management and quality assurance monitoring, respectively, of the process or program involved.

There are three sources for initiation of corrective action / recurrence control: hardware / software nonconformance discrepancy reports (DRs), customer feedbacks (CFs), and Quality System Deficiency Notices (QSDNs). Each process is described separately in the following sections.

##### 4.1 Recurrence Control Action Request (RCAR) Processing Initiated by MPR 8730.3, Control of Nonconforming Product.

4.1.1 DR Receipt. The designated S&MA CAS Lead shall receive hardware and software discrepancy reports for RCAR evaluation, preferably via electronic media, e-mail or through the CAS data system. The CAS Lead shall take no more than **five** work days from receipt of the report to review the data, determine if it is a reportable problem, and notify the appropriate MSFC personnel - i.e., the initiator if the issue is determined to not meet RCAR reportability or the technical point of contact (POC) responsible for analysis and corrective action

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recommendation of the designated RCAR, the Chief Engineer, and the S&MA project representative if the issue is evaluated as requiring an RCAR. If the data is provided other than through the on-line web system, the CAS Lead shall transfer the data into the web system. If information in addition to CAS / DR data fields is provided in paper form (sketches, etc.), that information shall be converted to electronic media via scanning and added to the web-based system by the CAS Lead.

Once the initial information is present in the on-line electronic system, the CAS Lead shall perform a preliminary review of the data and shall assign it to a CAS assessment engineer (AE) for processing.

The CAS AE shall review the data on-line. If there is critical data which is omitted, the CAS AE shall consult with the initiator of the discrepancy report or with some other person knowledgeable of the issue in order to complete the information to the fullest extent possible. The CAS AE shall then screen the report for applicability to the CAS.

4.1.2 DR Screening. Next, the CAS AE shall code the nonconformance as to Failure Mode and Cause, if known. The CAS AE then reviews the historical database for similar DRs based on system / subsystem, hardware / software and failure mode. If at least five (5) similar discrepancies are found, then trending as described in Section 4.6 below shall be performed. The CAS AE shall also review the nonconformance against the Preventive Action Disposition Log to determine if a related preventive action applied to this entity was ineffective in preventing the discrepancy. If so and the preventive action was in response to a Corrective / Preventive Action Notification (CAN), then the CAS AE shall contact the MSFC S&MA ALERT Coordinator, shall re-open the CAN for the project in question, and shall notify involved parties.

The CAS AE shall then screen the report for applicability to the CAS system. The CAS AE shall review the DR against CAS reporting criteria as defined in MPR 1280.4 (Reference Figure 1). If these criteria are not met, the problem shall be eliminated from consideration as a potential CAS problem. In such a case, the data record shall be marked as not a CAS problem in the data system by the CAS AE and shall be returned to the CAS Lead within the five workdays, along with rationale.

Based on these criteria, some examples of DRs which **would** require initiation of an RCAR are:

- a) A performance or test unsatisfactory condition or failure which, if occurring during mission, could jeopardize life, vehicle, or completion of prime mission objectives
- b) An unexplained anomaly
- c) A failure or unsatisfactory performance for which no known solution exists
- d) A situation which by itself has strong potential to affect a major mission or delivery milestone
- e) An issue for which the effect is not clearly understood to be benign
- f) An issue which is within performance parameters but demonstrates a clear trend toward an adverse condition by violating the 3 sigma range from previous performance

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- g) An issue for which a decision regarding its significance is not determined within the required CAS evaluation time frame

As stated before, DRs which are eliminated from consideration as a CAS problem and from requiring an RCAR shall be marked as such in the database and returned to the CAS Lead, along with nonproblem rationale. The CAS Lead shall then review the nonproblem evaluation and shall either concur or non-concur with the CAS assessment engineer's rationale for declaring it a CAS problem.

**4.1.3 Initial Processing Of CAS DR RCAR.** Once a DR has been accepted as a true CAS problem (i.e., an RCAR) by the CAS Lead, the CAS Lead shall transfer the issue to the CAS database and shall complete the RCAR / CAS portion of the DR. If needed, the CAS AE shall consult the problem originator, the S&MA project representative, or other MSFC organizations involved with the issue to obtain a sufficient understanding of the situation to complete the initial CAS problem definition data fields. Once this information is complete in the CAS database, the information and the 10 working day deadline for initial POC response shall be forwarded via e-mail notification to the applicable POC responsible for RCAR resolution recommendation (a design engineer, for example), the chief of the POC's organization (the project chief engineer, for example), and the S&MA project representative by the CAS organization.

(NOTE: The POC directly responsible for problem analysis / resolution recommendation shall be declared either in advance by the project or as needed in coordination between the CAS organization and the organization(s) involved.)

In each case, the prime individual responsible for problem evaluation, analysis, and development of corrective action shall be specifically noted in the data record and in the CAS Lead's project contacts list by the CAS organization. The CAS AE shall then confirm receipt of the RCAR assignment by the POC. When the POC responds within 10 working days with a plan of action and reasonable schedule (over 1 month shall require CAB review) for completion of problem analysis and resolution recommendation, the deadline for POC response shall be changed in the CAS database by the CAS AE. If a timely response is not provided, the CAS AE shall inform the POC that the response is considered delinquent and shall take steps to facilitate an appropriate response by the POC.

**4.1.4 S&MA Problem Resolution / Disposition Review / Concurrence.** Once the responsible POC has completed problem evaluation and analysis, has developed a recommended problem resolution / disposition, has completed those areas of the RCAR and has notified the CAS AE to coordinate MSFC review / concurrence. The CAS assessment engineer shall, within ten workdays of notification, review the POC's input for completeness (i.e., an entry in each associated data field), accuracy, and clarity. If Closure by Explanation is recommended, the CAS assessment engineer shall review the recommendation versus required entries for closure by explanation as itemized in MPR 1280.4. If the CAS AE finds fault with the closure recommendation, the POC shall be consulted by the CAS AE for clarification or correction of any discrepancy within the ten workdays.

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If the POC recommends closure of the RCAR as a nonproblem, the CAS assessment engineer shall review the nonproblem rationale and either accept the recommendation or disagree within ten workdays. If the nonproblem evaluation is accepted, then the CAS AE shall initiate closure review of the RCAR by the S&MA project representative within ten workdays and shall officially close the RCAR in the database as a nonproblem following S&MA concurrence.

Once all issues have been resolved regarding the POC's input to the mutual satisfaction of both the POC and the CAS AE or an impasse has been reached in resolution of disputed issues, the CAS AE shall update the problem trend information (if warranted and available per trending criteria described in Section 4.6) and initiate review of the POC recommendation by the MSFC actionee's Corrective Action Board within ten workdays.

The Corrective Action Board is comprised of the MSFC actionees (project manager, chief engineer, and S&MA project representative) chaired by the associated project manager. The CAS AE facilitates distribution of closure recommendation information to the CAB members and performs administrative support service functions. If obtaining closure is complicated or a CAB member requests a meeting for RCAR closure / disposition review, then the CAS AE coordinates arrangements for the CAB meeting. Each reviewer has the option to approve, question or reject the POC's recommendation. If rejected, the actionee shall provide a rationale for the rejection. The CAS AE shall record results of the CAB review, obtain CAB membership signature concurrence, and see that any decisions, directives, and / or action items issued are entered into the on-line CAS database and communicated to the POC within ten workdays.

Whenever the RCAR is officially approved as closed, the CAS AE shall complete the RCAR problem file, officially mark it closed, and inform the initiator of the issue regarding its final disposition within ten workdays of CAB approval. The CAS AE shall also assure that any assigned follow-up actions are performed, such as, but not limited to, evaluation of corrective action effectiveness by specific monitoring activities or issuance of a CAN for CAB-declared potential generic or systemic problems.

#### 4.2 Recurrence Control Action Request (RCAR) Processing Initiated by MWI 1280.2, Customer Feedback System.

4.2.1 CF Receipt. Centerwide CF reports are received by the designated CAS Lead for RCAR evaluation, preferably via electronic media e-mail or through the CAS data system. The CAS Lead shall take no more than **five** work days from receipt of the report to review the data, determine if it is a reportable problem, and notify the appropriate MSFC personnel - i.e., the initiator if the issue is determined to not meet RCAR reportability or the technical POC responsible for analysis and corrective action recommendation of the designated RCAR, the director of the service / product provider organization, and the designated S&MA representative. If the data is provided other than through the on-line web system, the CAS AE shall transfer the data into the web system. If information in addition to CAS data fields is provided in paper form

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(sketches, etc.), that information shall be converted to electronic media by CAS personnel via scanning and added as a referenced document to the web-based system.

Once the initial information is present in the on-line electronic system, the CAS Lead shall perform a preliminary review of the data and assign it to a CAS assessment engineer (AE) for processing.

The CAS AE shall review the data on-line. If there is critical data which is omitted, the AE shall consult the person who initiated the discrepancy report or other person knowledgeable with the issue in order to complete the information to the fullest extent possible. The CAS AE shall then screen the report for applicability to the CAS.

**4.2.2 CF Screening.** Next, the CAS AE shall code the feedback as to Failure Mode and Cause, if known. The CAS AE then shall review the historical database for similar CFs based on system / subsystem, hardware / software and failure mode. If at least five (5) similar discrepancies are found, then the CAS AE shall perform trending as described in Section 4.6 below. The CAS AE shall also review the feedback against the Preventive Action Disposition Log to determine if a related preventive action applied to this entity was ineffective in preventing the discrepancy. If so and the preventive action was in response to a CAN, then the CAS AE shall contact the MSFC S&MA ALERT Coordinator, re-open the CAN for the project/process involved, and notify the involved parties.

The CAS AE shall then screen the report for applicability to the CAS system. The CAS AE shall review the CF against CAS reporting criteria as defined in MPR 1280.4 (Reference Figure 2). If these criteria are not met, the feedback shall be eliminated from consideration as a potential CAS problem. In such a case, the CAS AE shall mark the data record as not a CAS problem in the data system and shall return it to the CAS Lead within the five workdays, along with rationale.

As stated before, CFs which are eliminated from consideration as a CAS problem and from requiring an RCAR shall be marked as such in the database by the CAS AE and returned to the CAS Lead, along with nonproblem rationale. The CAS Lead shall then review the nonproblem evaluation and either concur or return the item to the CAS assessment engineer with rationale for declaring it a CAS problem. If the CAS Lead concurs with the non-RCAR rationale, the CAS Lead shall send electronic notification along with the rationale for closing the CF without taking corrective action and shall close the CF in the Centerwide CF data system. The CF data record shall also be closed with reference to the follow-on RCAR when it is approved for upgrade to an RCAR.

**4.2.3 Initial Processing Of CAS CF RCAR.** Once a CF has been accepted as a true CAS problem (i.e., an RCAR) by the CAS Lead, the CAS Lead shall transfer the issue to the CAS database and complete the RCAR / CAS portion of the CF. If needed, the CAS AE shall consult the comment originator, the S&MA representative, or other MSFC organization(s) to obtain a sufficient understanding of the situation to complete the initial CAS problem definition data fields. Once this information is complete in the CAS database, the information and the 10

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working day deadline for initial POC response shall be forwarded by the CAS Lead via e-mail notification to the applicable POC responsible for RCAR resolution recommendation, the chief of the POC's organization, and the designated S&MA representative.

(NOTE: The POC directly responsible for problem analysis / resolution recommendation shall be declared either in advance by the project / program or as needed by the CAS Lead in coordination with the organization(s) involved.)

In each case, the prime individual responsible for problem evaluation, analysis, and development of corrective action shall be specifically noted by the CAS Lead in the data record and in the CAS Lead's contacts list. The CAS AE shall then confirm receipt of the RCAR assignment by the POC. When the POC responds within 10 working days with a plan of action and reasonable schedule (over 1 month requires CAB review) for completion of problem analysis and resolution recommendation, the deadline for POC response shall be changed in the CAS database by the CAS AE. If a timely response is not provided, the CAS AE shall inform the POC that the response is considered delinquent and shall take steps to facilitate an appropriate response by the POC.

**4.2.4 S&MA Problem Resolution / Disposition Review / Concurrence.** Once the responsible POC has completed problem evaluation and analysis, has developed a recommended problem resolution / disposition, has completed those areas of the RCAR and notified the CAS AE to coordinate MSFC review / concurrence the CAS assessment engineer shall, within ten workdays of notification, review the POC's input for completeness (i.e., and entry in each associated data field), accuracy, and clarity. If Closure by Explanation is recommended, the CAS assessment engineer shall review the recommendation versus required entries for closure by explanation as itemized in MPR 1280.4. If the CAS AE finds fault with the closure recommendation, the POC shall within the ten workdays be consulted by the CAS AE for clarification or correction of any discrepancy.

If the POC recommends closure of the RCAR as a nonproblem, the CAS assessment engineer shall review the nonproblem rationale and either accept the recommendation or disagree within ten workdays. If the nonproblem evaluation is accepted, then the CAS AE shall initiate closure review of the RCAR by the S&MA project representative within ten workdays and shall officially close the RCAR in the database as a nonproblem following S&MA concurrence.

Once all issues have been resolved regarding the POC's input to the mutual satisfaction of both the POC and the CAS or an impasse has been reached in resolution of disputed issues, the CAS AE shall update the problem trend information (if warranted and available per trending criteria described in Section 4.6) and initiate review of the POC recommendation by the MSFC actionees (product / service organization manager, QMS Management Representative, and designated S&MA representative) Corrective Action Board within ten workdays.

The Corrective Action Board is comprised of the MSFC actionees chaired by the QMS Management Representative. The CAS AE shall facilitate distribution of closure

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recommendation information to the CAB members and shall perform administrative support service functions. If obtaining closure is complicated or a CAB member requests a meeting for RCAR closure / disposition review, then the CAS AE shall coordinate arrangements for the CAB meeting. Each reviewer has the option to approve, question or reject the POC's recommendation. If rejected, the actionee shall provide a rationale for the rejection. The CAS AE shall record results of the CAB review, shall obtain CAB membership signature concurrence, and shall see that any decisions, directives, and / or action items issued are entered into the on-line CAS database and communicated to the POC within ten workdays.

Whenever the RCAR is officially approved as closed, the CAS AE shall complete the RCAR problem file, officially mark it closed, and inform the initiator of the issue regarding its final disposition within ten workdays of CAB approval. The CAS AE shall also assure that any assigned follow-up actions are performed, such as, but not limited to, evaluation of corrective action effectiveness by specific monitoring activities or issuance of a CAN for CAB-declared potential generic or systemic problems.

#### 4.3 Recurrence Control Action Request (RCAR) Processing Initiated by MWI 1280.4, MSFC Quality System Deficiency Notice System.

4.3.1 QSDN Receipt. QSDN reports are received for RCAR evaluation, preferably via electronic media, e-mail or through the CAS data system, by the designated CAS Lead. The CAS Lead shall take no more than **five** work days from S&MA receipt of the report to review the data, determine if it is a reportable problem, and notify the appropriate MSFC personnel - i.e., the initiator if the issue is determined to not meet RCAR reportability or the responsible quality system document OPR or process owner POC responsible for analysis and corrective action recommendation of the designated RCAR. If the data is provided other than through the on-line web system, the CAS shall transfer the data into the web system. If information in addition to CAS data fields is provided in paper form (sketches, etc.), that information shall be converted to electronic media via scanning and added to the web-based system by the CAS organization.

Once the initial information is present in the on-line electronic system, the CAS Lead shall perform a preliminary review of the data and assign it to a CAS assessment engineer (AE) for processing.

The CAS AE shall review the data on-line. If there is critical data which is omitted, the CAS AE shall consult the person who initiated the QSDN or other person knowledgeable with the issue in order to complete the information to the fullest extent possible. The CAS AE shall then screen the report for applicability to the CAS.

4.3.2 QSDN Screening. Next, the CAS AE shall code the QSDN as to Failure Mode and Cause, if known. The CAS AE then shall review the historical database for similar QSDNs based on system / subsystem and failure mode. If at least five (5) similar discrepancies are found, then the CAS AE shall perform trending as described in Section 4.6 below. The AE also shall review the nonconformance against the Preventive Action Disposition Log to determine if a

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related preventive action applied to this entity was ineffective in preventing the discrepancy. If so and the preventive action was the result of a CAN, then the CAS AE shall contact the MSFC S&MA ALERT Coordinator, re-open the CAN for the project/process involved, and notify the involved parties.

The CAS AE shall then screen the report for applicability to the CAS system. The CAS AE shall review the QSDN against CAS reporting criteria as defined in MPR 1280.4 (Reference Figure 3). If these criteria are not met, the problem shall be eliminated from consideration as a potential CAS problem by the CAS AE. In such a case, the CAS AE shall mark the data record as not a CAS problem in the data system and return it to the CAS Lead within the five workdays, along with rationale.

As stated before, QSDNs which are eliminated from consideration as a CAS problem and from requiring an RCAR shall be marked by the CAS AE as such in the database and returned to the CAS Lead, along with nonproblem rationale. The CAS Lead shall then review the nonproblem evaluation and either concur or return the item to the CAS assessment engineer with rationale for declaring it a CAS problem. If he concurs with a non-RCAR recommendation, the CAS Lead shall then notify the QSDN originator of the rationale for QSDN closure without action and close the QSDN in that data system. The CAS Lead shall also close the QSDN with reference to the follow-on RCAR when it is approved for upgrade to an RCAR.

**4.3.3 Initial Processing Of CAS QSDN RCAR.** Once a QSDN has been accepted as a true CAS problem (i.e., an RCAR) by the CAS Lead, the CAS Lead shall transfer the issue to the CAS database and complete the RCAR / CAS portion of the QSDN. If needed, the CAS AE shall consult the QSDN originator, the S&MA representative, or other MSFC organization(s) to obtain a sufficient understanding of the situation to complete the initial CAS problem definition data fields. Once this information is complete in the CAS database, the information and the 10 working day deadline for initial POC response shall be forwarded by the CAS Lead via e-mail notification to the applicable POC responsible for RCAR resolution recommendation, the chief of the POC's organization, and the designated S&MA representative. (NOTE: The POC directly responsible for problem analysis / resolution recommendation shall be declared either in advance by the project / program or shall be declared as needed in coordination between the CAS Lead and the organization manager.) In each case, the prime individual responsible for problem evaluation, analysis, and development of corrective action shall be specifically noted by the CAS Lead in the data record and in the CAS Lead's contacts list. The CAS AE shall then confirm receipt of the RCAR assignment by the POC. When the POC responds within 10 working days with a plan of action and reasonable schedule (over 1 month requires CAB review) for completion of problem analysis and resolution recommendation, the deadline for POC response shall be changed in the CAS database by the CAS AE. If a timely response is not provided, the CAS AE shall inform the POC that the response is considered delinquent and shall take steps to facilitate an appropriate response by the POC.

**4.3.4 S&MA Problem Resolution / Disposition Review / Concurrence.** Once the responsible POC has completed problem evaluation and analysis, developed a recommended problem

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resolution / disposition, completed those areas of the RCAR and notified the CAS to coordinate MSFC review / concurrence the CAS assessment engineer shall, within ten workdays of notification, review the POC's input for completeness (i.e., and entry in each associated data field), accuracy, and clarity. If Closure by Explanation is recommended, the CAS assessment engineer shall review the recommendation versus required entries for closure by explanation as itemized in MPR 1280.4. If the CAS AE finds fault with the closure recommendation, the POC shall be consulted by the CAS AE for clarification or correction of any discrepancy within the ten workdays.

If the POC recommends closure of the RCAR as a nonproblem, the CAS assessment engineer shall review the nonproblem rationale and either accept the recommendation or disagree within ten workdays. If the nonproblem evaluation is accepted, then the CAS AE shall initiate closure review of the RCAR by the S&MA project representative within ten workdays and shall officially close the RCAR in the database as a nonproblem following S&MA concurrence.

Once all issues have been resolved regarding the POC's input to the mutual satisfaction of both the POC and the CAS AE or an impasse has been reached in resolution of disputed issues, the CAS AE shall update the problem trend information (if warranted and available per trending criteria described in Section 4.6) and initiate review of the POC recommendation by the MSFC actionees (responsible document OPR / process owner management, QMS Management Representative, and designated S&MA representative) Corrective Action Board within ten workdays.

The Corrective Action Board is comprised of the MSFC actionees chaired by the QMS Management Representative. The CAS AE shall facilitate distribution of closure recommendation information to the CAB members and perform administrative support service functions. If the closure is involved or a CAB member requests a meeting for RCAR closure / disposition review, then the CAS AE shall coordinate arrangements for the CAB meeting. Each reviewer has the option to approve, question or reject the POC's recommendation. If rejected, the actionee shall provide a rationale for the rejection. The CAS AE shall record results of the CAB review, obtain CAB membership signature concurrence, and assure that any decisions, directives, and / or action items issued are entered into the on-line CAS database and communicated to the POC within ten workdays.

Whenever the RCAR is officially approved as closed, the CAS AE shall complete the RCAR problem file, officially mark it closed, and inform the initiator of the issue regarding its final disposition within ten workdays of CAB approval. The CAS AE shall also assure that any assigned follow-up actions are performed, such as, but not limited to, evaluation of corrective action effectiveness by specific monitoring activities or issuance of a CAN for CAB-declared potential generic or systemic problems.

4.4 CAS Database Maintenance. S&MA encourages all persons involved in nonconformance (DR, CF, and QSDN) initiation, problem analysis and disposition, and disposition review / concurrence to use the web-based electronic system for themselves to enter

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all pertinent data to their part of problem processing. S&MA's Information Management support group shall assure that adequate access and security and update capabilities are provided for this data to the CAS organization and all actionees.

If, for whatever reason, the persons involved are not able to directly enter their input into the electronic system, they may provide this data either in electronic or hardcopy format to the CAS AE. The CAS AE, in consultation with the Information Management group as required, shall convert the data into a form accessible to the web-based data system and either enter or attach the information to the CAS record. (Any such attached file is directly accessible from the on-line web data system.)

The CAS Lead shall work with the Information Management group to assure that the CAS database system is maintained to an adequate performance level. A regular backup of the total CAS system, both data and software, shall be performed by the ODIN data system support contractor in keeping with their data backup procedures.

**4.5 Regular and Ad Hoc Reporting** If the CAS problem has not been expeditiously addressed as required by MPR 1280.4 after initial transfer of the CAS Lead processing responsibilities to the investigation / resolution organization, response is considered delinquent. Each month, each CAS AE shall review open RCARs and status them, as required, with the POC - providing results to the CAS Lead. A list of all delinquent reports shall be generated by the CAS Lead from the CAS database and AE input and shall be provided electronically to the POCs, organizational chiefs and S&MA representative having delinquent responses within their area as specified in MPR 1280.4. A comparable listing of all delinquent reports shall be generated and stored on the CAS web page for general availability.

The CAS Lead shall also generate a monthly list of the newly opened and newly closed CAS RCARs from the prior month. This report shall also be made available by the CAS Lead on the CAS web page.

The CAS Lead shall also generate input to the Certification of Flight Readiness / Flight Readiness Review cycle. When there is an open RCAR related to a mission milestone, this information shall be provided by the CAS Lead as open work supporting data against the mission milestone.

**4.6 CAS Problem Trending** Trending shall be required only when the frequency of nonconformances or CAS-reported problems for related components or related problem symptoms (i.e., Failure Mode) or failure cause within a given program have experienced at least five occurrences. Whenever this problem count is met or exceeded, the CAS AE shall perform a review of the database to reveal any trend that may have developed. The CAS AE shall also check for similar problems in other projects to ferret out any cross-Center trends that may affect more than one project.

The steps in problem trending shall be as follows:

CHECK THE MASTER LIST AT: <http://inside.msfc.nasa.gov/MIDL/>  
 VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE

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- a) The CAS AE shall review the data base for trends on the project where the latest occurrence was identified.
- b) The CAS AE shall review the data base for similar problems in other projects.
- c) Based on engineering judgment, the CAS AE shall evaluate the trend as good (i.e., occurring less frequently over time) or adverse (i.e., failure or failure rate increasing or not becoming less frequent over time). If an adverse trend is identified for a draft RCAR, this shall be considered by the CAS AE in RCAR screening. If an adverse trend is identified after RCAR declaration, the CAS AE shall bring this information to the POC and CAB for their consideration.

The trending information, consisting of the historical listing of related problems, shall be included by the CAS AE as an Adobe Acrobat (.pdf) attachment to the CAS RCAR source document and shall be made available in the CAS data base.

## 5. NOTES

5.1 Directive Replacement. This Directive replaces QS-R-012G, S&MA (CR) Operation of the MSFC Corrective Action System.

5.2 Records. All records associated with operating instruction have already been defined in MPR 1280.4.

## 6. SAFETY PRECAUTIONS AND WARNING NOTES

None

## 7. APPENDICES, DATA, REPORTS, AND FORMS

S&MA's CAS organization shall use hardcopy and / or electronic versions of the following standard MSFC forms in operation of the CAS:

MSFC Form 460	Discrepancy Record (DR) (Reference MPR 8730.3)
MSFC Form 4306	MSFC Customer Feedback (Reference MWI 1280.2)
MSFC Form 4334	MSFC Corrective / Preventive Action Notification (Reference MWI 1280.3)
MSFC Form 4335	MSFC Quality System Deficiency Notice (Reference MWI 1280.4)

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## 8. RECORDS

None.

## 9. TOOLS, EQUIPMENT, AND MATERIALS

Performance of this OI requires the MSFC CAS, QSDN, CF, and DR databases and their associated hardware / software environment(s). It also requires access to Adobe Acrobat .pdf generator software, such as Acrobat Distiller and Acrobat PDF Writer. Access to a scanner and scanner software to convert hardcopy documents into electronic image storage format are also required.

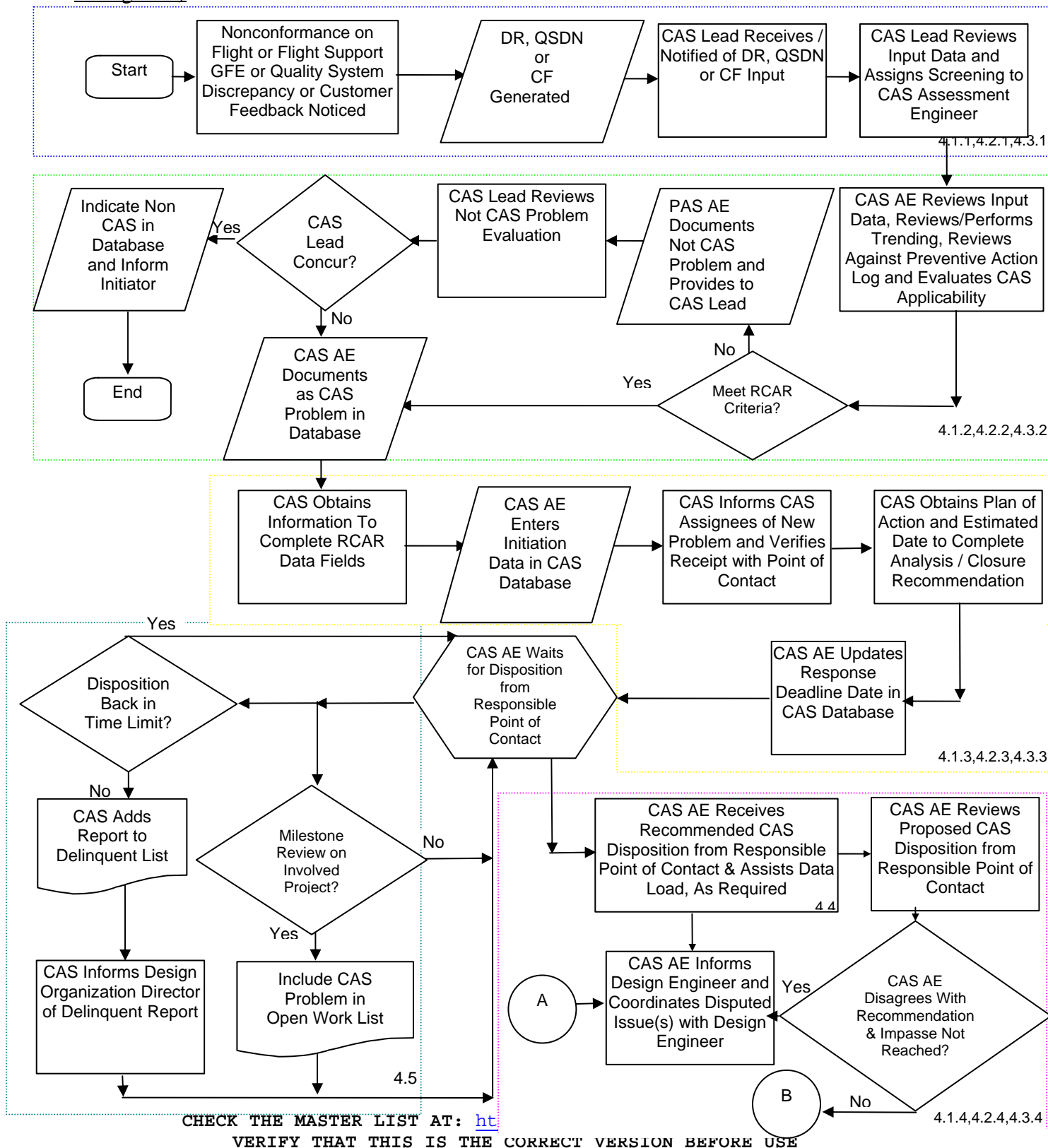
## 10. PERSONNEL TRAINING AND CERTIFICATION

None

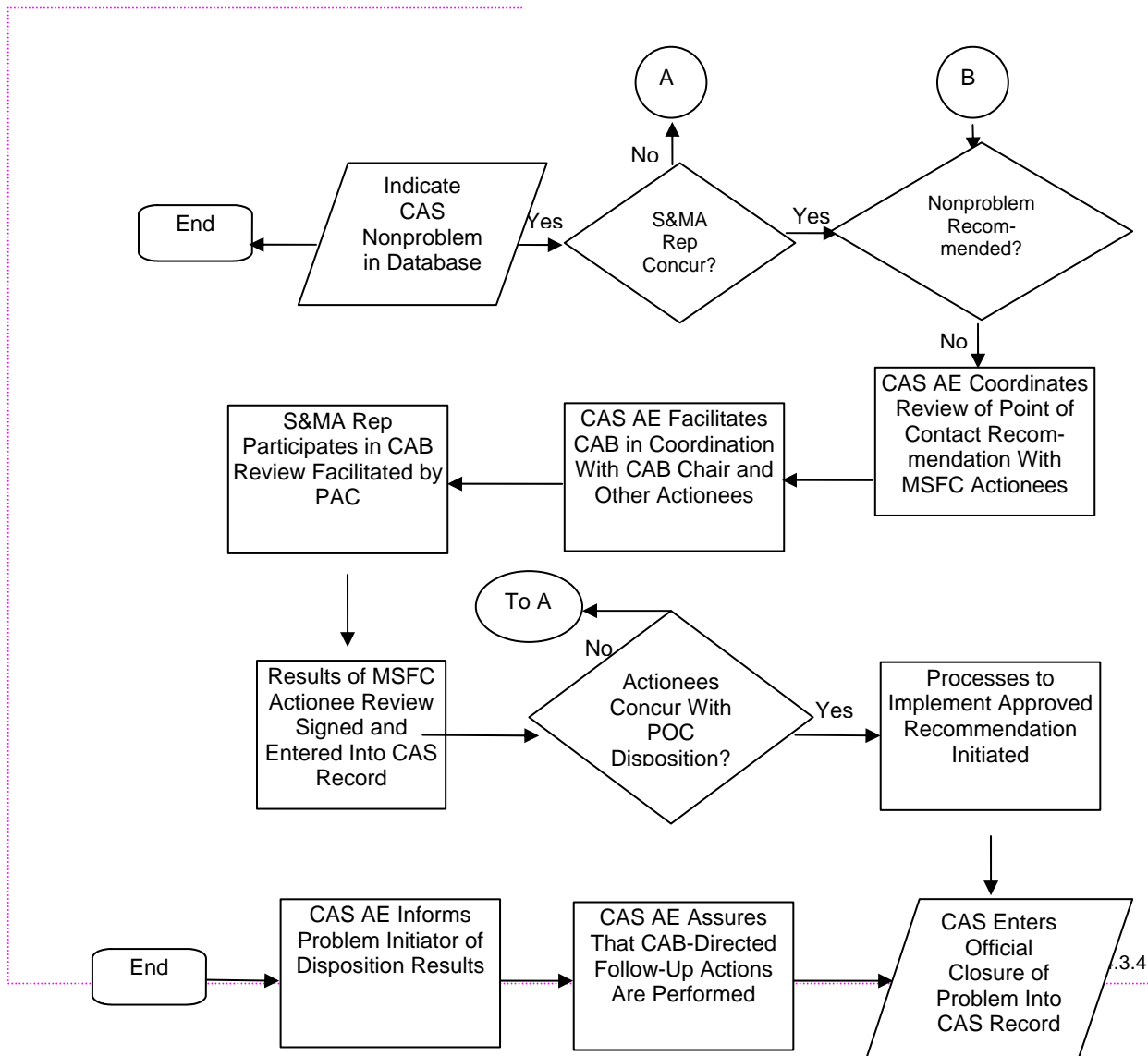
## 11. FLOW DIAGRAMS

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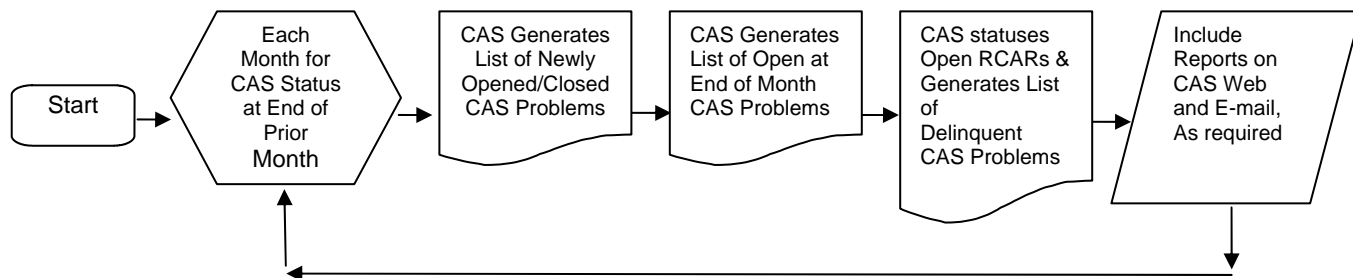
### 11.1 Problem Generation, Screening, Processing, and Review / Concurrence (Reference 4.1 through 4.5)



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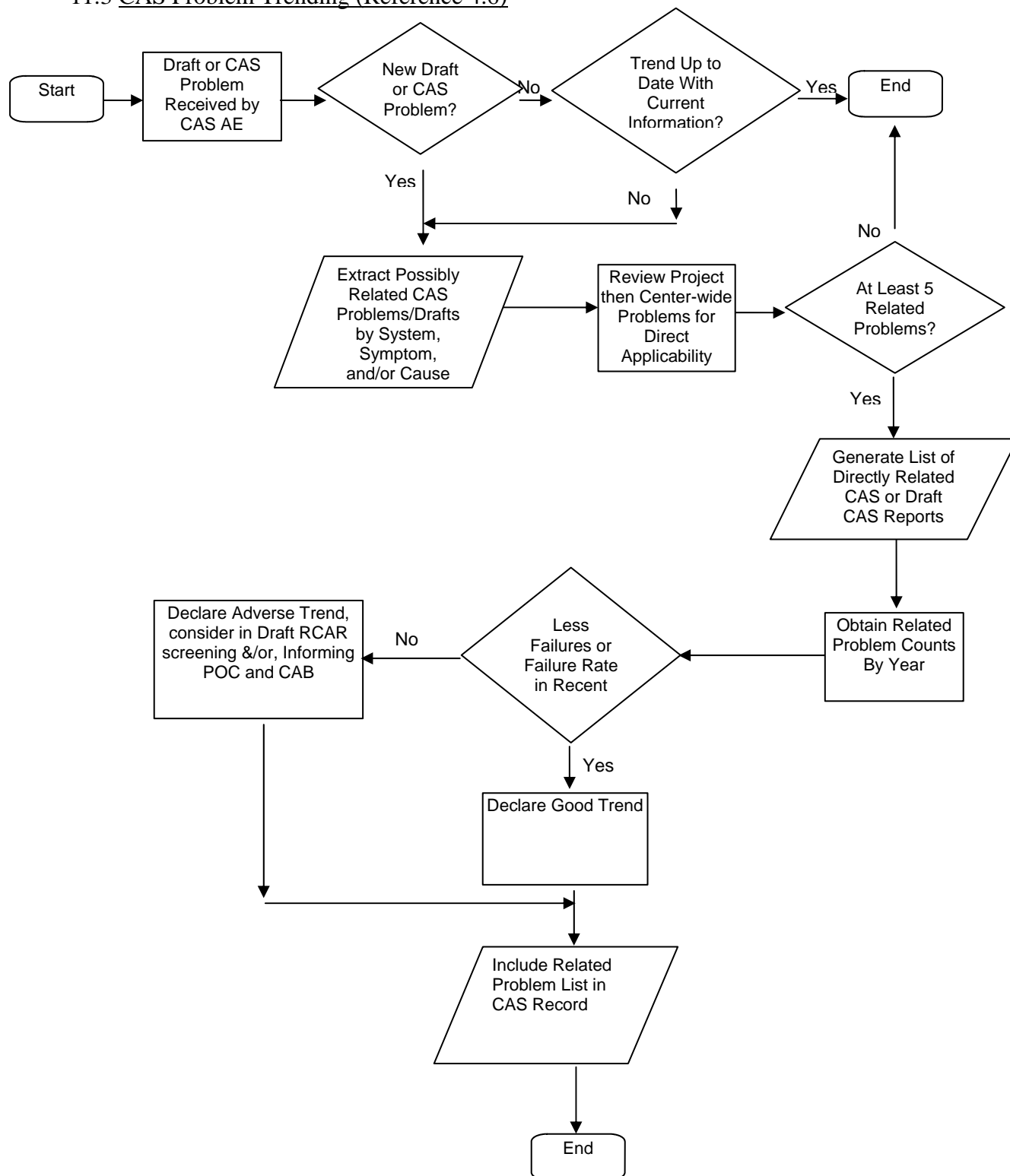


## 11.2 Regular Reporting (Reference 4.5)



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### 11.3 CAS Problem Trending (Reference 4.6)



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## 12. RESPONSIBILITIES

### 12.1 CAS Lead. The CAS Lead shall be responsible for:

- obtaining and assigning actionees for CAS problems in the various projects, organizations, and / or directorate areas
- receiving and delegating DRs / CFs / QSDNs to a specific CAS assessment engineer for preliminary review and screening
- reviewing and approving CAS nonproblem declaration,
- assuring generation and provision of required regular and ad hoc CAS reports
- assuring quality of performance by the assigned CAS assessment engineer
- coordinating with the S&MA information management support group maintenance and required upgrade to the CAS electronic database

### 12.2 CAS Assessment Engineer. The CAS assessment engineer shall be responsible for:

- screening DRs, CFs, and QSDNs as assigned by the CAS Lead for CAS applicability within 5 work days from report receipt by the PAC
- assuring and, if necessary, providing complete nonconformance data during initial report screening
- documenting rationale for evaluating the nonconformance as a CAS problem or nonproblem in the electronic data system
- evaluating and, if justified, performing problem trending on assigned draft and screened CAS problems
- reviewing design engineer problem disposition recommendation CAS input for completeness and accuracy within ten days of receipt
- coordinating with the design engineer any disagreements regarding the design engineer's evaluation and recommendation within ten days of receipt
- initiating review of proposed CAS problem resolution / disposition by the MSFC actionees within ten days of POC completion and coordinating actionee review
- facilitating arrangements for CAB review within ten days of POC completion, administering the CAB, and supporting a problem review board on assigned CAS problems
- notifying the initiator of the DR / CF / QSDN of the problem disposition within ten days of disposition
- assuring completion of all assigned follow-up actions from the CAB

### 12.3 S&MA Representative. The S&MA representative shall be responsible for:

- assisting the CAS assessment engineer in obtaining required data for evaluation of potential CAS problems
- evaluating and approving nonproblem recommendations by the point of contact
- reviewing and approving proposed disposition rationale from the point of contact regarding CAS problems
- participating in CAS corrective action boards regarding the project, process, service, or procedure, as required